

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|-------|------|--|---|------------------|---------|------------------|
| S1 | 419 | (YOMOGIDA.in. or HIRATA.in. or NAKANO.in.) and (exhaust near3 gas) and (engine) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/27 08:41 |
| S2 | 51 | (YOMOGIDA.in. or HIRATA.in. or NAKANO.in.) and (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 13:44 |
| S3 | 8 | (YOMOGIDA.in. or HIRATA.in. or NAKANO.in.) and (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 13:46 |
| S4 | 1696 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 13:46 |
| S5 | 1229 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 tim\$4) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 13:46 |
| S6 | 358 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 13:46 |

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|-----|-----|---|---|----|----|---------------------|
| S7 | 204 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 13:50 |
| S8 | 170 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 13:49 |
| S9 | 161 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (torque or load) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 13:50 |
| S10 | 120 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 13:50 |
| S11 | 103 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (torque or load) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/26 15:31 |

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|-----|----|---|---|----|----|---------------------|
| S12 | 16 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (torque near4 compensat\$4) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 14:00 |
| S13 | 18 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (torque near4 compensat\$4) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 13:56 |
| S14 | 17 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 with (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (torque near4 compensat\$4) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 14:00 |
| S15 | 15 | (exhaust near3 gas) and (engine) and (fuel near4 (amount near4 tim\$4)) and (retard\$4 with (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (torque near4 compensat\$4) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 14:00 |

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|-----|-----|---|---|----|----|------------------|
| S16 | 23 | (exhaust near3 gas) and (engine) and (fuel near4 (amount or tim\$4)) and (retard\$4 with (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (torque near4 compensat\$4) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 14:01 |
| S17 | 72 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (torque) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 14:09 |
| S18 | 112 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (torque) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 14:09 |
| S19 | 43 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (torque) and ((increas\$4 or decreas\$4 or rais\$4) near2 torque) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 14:20 |

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|-----|----|--|---|----|----|------------------|
| S20 | 11 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (torque) and (control\$4 near2 torque) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/21 14:21 |
| S21 | 19 | ("5655365" "5826425" "5826427" "5839275" "5845492" "5956942" "5967113" "5974788" "5996338" "6041591" "6058700" "6134884" "6141960" "6178743" "6195987" "6199374" "6216450" "6378297" "6536209").PN. | US-PGPU B; USPAT; USOCR | OR | ON | 2005/04/21 14:27 |
| S22 | 0 | ("6865880").URPN. | USPAT | OR | ON | 2005/04/21 14:27 |
| S23 | 5 | ("6044642" "6240724" "6449946" "6560960" "6574961").PN. | US-PGPU B; USPAT; USOCR | OR | ON | 2005/04/21 14:27 |
| S24 | 0 | ("6725649").URPN. | USPAT | OR | ON | 2005/04/21 14:27 |
| S25 | 8 | ("4835963" "4835964" "5195316" "5287698" "5319930" "5716586" "6405528" "6438948").PN. | US-PGPU B; USPAT; USOCR | OR | ON | 2005/04/21 14:27 |
| S26 | 0 | ("6851258").URPN. | USPAT | OR | ON | 2005/04/21 14:28 |
| S27 | 6 | ("5850735" "5974791" "6367246" "6405528" "6490857" "6497095").PN. | US-PGPU B; USPAT; USOCR | OR | ON | 2005/04/21 14:28 |
| S28 | 0 | ("6698192").URPN. | USPAT | OR | ON | 2005/04/21 14:28 |
| S29 | 10 | ("5402641" "5423181" "5606855" "5784880" "5839275" "5902210" "5941211" "6021638" "6148611" "6389807").PN. | US-PGPU B; USPAT; USOCR | OR | ON | 2005/04/21 14:28 |

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| S30 | 3 | ("6560960").URPN. | USPAT | OR | ON | 2005/04/21 14:28 |
| S31 | 11 | ("4686827" "5207058" "5826425" "5839275" "5910096" "6021767" "6044642" "6131388" "6141960" "6173571" "6240723").PN. | US-PGPU B; USPAT; USOCR | OR | ON | 2005/04/21 14:28 |
| S32 | 17 | ("6378297").URPN. | USPAT | OR | ON | 2005/04/21 14:28 |
| S33 | 5 | ("5482017" "5642705" "6044642" "6116208" "6141960").PN. | US-PGPU B; USPAT; USOCR | OR | ON | 2005/04/21 14:29 |
| S34 | 6 | ("6345499").URPN. | USPAT | OR | ON | 2005/04/21 14:29 |
| S35 | 5 | ("5482017" "5642705" "6044642" "6116208" "6141960").PN. | US-PGPU B; USPAT; USOCR | OR | ON | 2005/04/21 14:29 |
| S36 | 4 | ("6330796").URPN. | USPAT | OR | ON | 2005/04/21 14:29 |
| S37 | 11 | ("5357928" "5642705" "5647204" "5661971" "5727384" "5729971" "5806482" "5910096" "5975046" "6044642" "6141960").PN. | US-PGPU B; USPAT; USOCR | OR | ON | 2005/04/21 14:29 |
| S38 | 6 | ("6318074").URPN. | USPAT | OR | ON | 2005/04/21 14:29 |
| S39 | 0 | ("2004/0103647").URPN. | USPAT | OR | ON | 2005/04/21 14:30 |
| S40 | 86 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (torque or load) and ((increas\$4 or decreas\$4 or rais\$4) near2 fuel) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/26 15:32 |

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|-----|-----|--|---|----|----|---------------------|
| S41 | 87 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near4 temperature) and (torque or load) and ((increas\$4 or decreas\$4 or rais\$4) near2 fuel) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/26 15:32 |
| S42 | 96 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near4 temperature) and (torque or load) and ((increas\$4 or decreas\$4 or rais\$4) near4 fuel) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/26 15:32 |
| S43 | 156 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near4 temperature) and (torque or load) and ((increas\$4 or decreas\$4 or rais\$4) near4 fuel) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/26 15:31 |
| S44 | 85 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (torque or load) and ((increas\$4 or rais\$4) near2 fuel) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/26 15:33 |

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|-----|----|---|---|----|----|---------------------|
| S45 | 82 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (torque or load) and ((increas\$4) near2 fuel) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/26 15:32 |
| S46 | 38 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (control\$4 near4 (torque or load)) and ((increas\$4 or rais\$4) near2 fuel) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/26 15:41 |
| S47 | 11 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (compens\$4 near4 (torque or load)) and ((increas\$4 or rais\$4) near2 fuel) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/26 15:33 |
| S48 | 20 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (control\$4 near4 (torque)) and ((increas\$4 or rais\$4) near2 fuel) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/26 15:41 |

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|-----|----|--|---|----|----|---------------------|
| S49 | 11 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (compens\$4 near4 (torque)) and ((increas\$4 or rais\$4) near2 fuel) and (60/272-324.ccls.) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/26 15:41 |
| S50 | 12 | (exhaust near3 gas) and (engine) and (fuel near4 (amount and tim\$4)) and (retard\$4 near4 (inject\$4 near4 tim\$4)) and (exhaust near4 temperature) and ((increas\$4 or decreas\$4 or rais\$4) near2 temperature) and (compens\$4 near4 (torque)) and ((increas\$4 or rais\$4) near2 fuel) | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/26 15:42 |
| S51 | 1 | "5255512" | JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/27 08:42 |
| S52 | 2 | "6698192" | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/27 08:46 |
| S53 | 2 | "6865880" | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/27 08:47 |

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| S54 | 2 | "20010027644" | US-PGPU B; USPAT; EPO; JPO; DERWEN T; IBM_TDB | OR | ON | 2005/04/27 08:47 |
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L1: Entry 1 of 1

File: DWPI

Feb 8, 2005

DERWENT-ACC-NO: 2004-052724

DERWENT-WEEK: 200511

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TITLE: Regeneration device, for exhaust gas filter of diesel engine, has controller to control regeneration of filter at several phases using exhaust gas and oxygen concentration regulator

INVENTOR: KAWASHIWA, J; OTAKE, M ; TABATA, M ; TSUTSUMOTO, N ; KAWASHIMA, J

PRIORITY-DATA: 2002JP-0189206 (June 28, 2002)

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PATENT-FAMILY:

| PUB-NO | PUB-DATE | LANGUAGE | PAGES | MAIN-IPC |
|--|------------------|----------|-------|------------|
| <input type="checkbox"/> US 6851258 B2 | February 8, 2005 | | 000 | F01N003/02 |
| <input type="checkbox"/> US 20040000139 A1 | January 1, 2004 | | 030 | F01N005/04 |
| <input type="checkbox"/> EP 1375877 A2 | January 2, 2004 | E | 000 | F02D041/02 |
| <input type="checkbox"/> JP 2004028045 A | January 29, 2004 | | 028 | F02D041/38 |

INT-CL (IPC): [F01 N 3/00](#); [F01 N 3/02](#); [F01 N 5/04](#); [F02 B 37/00](#); [F02 B 37/22](#); [F02 D 21/08](#); [F02 D 23/00](#); [F02 D 41/02](#); [F02 D 41/04](#); [F02 D 41/38](#); [F02 M 25/07](#)

ABSTRACTED-PUB-NO: US20040000139A

BASIC-ABSTRACT:

NOVELTY - A controller (31) raises the temperature of the filter (41) to the combustion temperature of particulates by controlling an exhaust gas temperature regulator, in the primary phase of filter regeneration. In a secondary phase, the oxygen concentration of exhaust gas is held at a low level, while the filter temperature is maintained by controlling an oxygen concentration regulator. In a tertiary phase, complete combustion of the trapped particulate is performed.

DETAILED DESCRIPTION - In the tertiary phase, the controller controls the oxygen concentration regulator, so that the oxygen concentration of exhaust gas is held at a predetermined high level while filter temperature is maintained to complete the combustion of trapped particulate matter.

USE - Used for the regeneration of a particulate filter for filtering exhaust gas from diesel engines.

ADVANTAGE - The device prevents the residual particulate matter from remaining in the filter after completion of filter regeneration without any damage to the filter due to the use of a controller and an oxygen concentration and temperature

regulator.

DESCRIPTION OF DRAWING(S) - The figure shows a schematic diagram of the diesel engine.

Diesel engine 1

Fuel injection nozzle 17

Controller 31

Crank angle sensor 33

Water temperature sensor 34

Air flow meter 35

Temperature sensors 38, 37

Filter 41

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